



A mulch of straw and old hay kept this flower, small-fruit, and vegetable garden free from weeds.

Mulches for the Home Garden

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For the home gardener, a mulch may be defined as any protective covering of the soil. It may protect the plants or their roots from cold, from heat, from drought, or from weeds, or it may keep fruits or vegetables clean. Until recently most of the reported experiments with mulch were conducted either to determine the influence of mulch on the yield or to measure the influence of mulch on time of maturity.

Some experiments have been conducted also to compare the influence of mulch with the effects of cultivation and to determine whether there is value from cultivation beyond that of controlling weeds. Many of the experiments have been with some form of commercial mulch paper or foils.

Most of the materials were dark colored and thus absorbed the sun's rays, thereby making the soil and the air around the plants warmer. The mulching was, therefore, most beneficial to the warm-weather crops; sometimes it was detrimental to the crops that grow best in cool weather.

Home gardeners are now using many other materials as a mulch on their fruits, flowers, and vegetables. Included are leaves; grass or lawn cuttings; straw; old hay; tall wild grasses; waste products, such as ground-up corncobs; peat moss; by-products, such as sawdust, shavings, and woodchips, and shredded bark; newspapers; and corrugated paper. All forms of paper have to be fastened or weighted down.

Where to Use

Generally, the most important considerations in deciding whether to mulch any part of a garden are: initial cost, labor in making the application, whether for annual or perennial crops, weed seeds that may be brought in with the mulch, and the effects on soil temperature and fertility and on insects or diseases.

The most efficient use of mulches is for such perennials as bushberries, some of the shrubs, asparagus, and rhubarb, and for the long-season, large-growing vegetables. Tomatoes, muskmelons, watermelon, sweet corn, peppers, and potatoes generally benefit from proper mulching.

Purposes

Apparently, the home gardener's chief interests in mulches today is to prevent the growth of weeds. Some gardeners may think, however, of saving labor in hoeing or cultivating, and others are mostly concerned with a way to conserve and maintain uniform soil moisture. Keeping fruit off the soil and clean is particularly important for strawberries, tomatoes, and melons. The influence on the yield and the time of maturity must also be considered. Some kinds of mulch or the improper use of any mulch may decrease the yield or delay maturity, while another type of mulch used for the same crop might increase the yield by hastening maturity.

Three bushels of sawdust kept 100 square feet of soil between these widely spaced tomato plants entirely free from weeds for the remainder of the season





Heavy applications of a sawdust mulch for several years have almost completely controlled weeds in this garden. The fertility of the soil has been maintained or improved by a liberal supply of a nitrogen fertilizer with the sawdust.

Time and Amount to Apply

Any form of mulch helps to prevent the wind and the sun from drying the soil surface. This saves soil moisture for the crops. The air just above the soil warms much more rapidly than the soil. A loose mulch serves as an insulating layer to further slow up the warming of the soil, unless the mulching material is a good absorbent of the sun's rays. Because of this, the mulches that tend to keep the soil cool should be applied as shallow as possible and still prevent weed growth. Also, the lighter the application the greater the amount of rain that will reach the root zone of the soil. Heavy layers of peat moss, sawdust, and other water-absorbing materials may be detrimental, while thinner layers that would let more water into the soil might be helpful.

Many of the crops on which it is practical to use a mulch both to control weeds and to conserve soil moisture grow better at our warmer soil temperatures. This is another reason for not making the mulch any thicker than necessary. This also means that it is best not to apply the mulching material to the warm-weather crops until the soil is warm. Generally, for tomatoes, sweet corn, and melons it is best to wait until they have a fair start. Loose mulches can be helpful from year to year in controlling weeds and grass in asparagus and bushberries.

On the annual crops, loose mulches, such as sawdust, peat moss, and many others, can be left in place at the end of the season to be worked into the soil. With heavy applications, it may be more practical to reclaim most of the material for use another year.

Some materials, such as peat moss and the woody by-products, sawdust and planings, decompose rather slowly. In the early stages of decomposition considerable nitrogen is needed. Extra nitrogen fertilizer should be applied to take care of this need. Usually $\frac{1}{2}$ pound of nitrate of soda for each bushel of woody material has been enough. If nitrate of soda is not available, the equivalent amount of nitrogen will be applied in a mixed fertilizer such as 5-10-5 if $1\frac{1}{2}$ to 2 pounds are used. If later on the crops seem to be poor in color, some additional nitrogen should be applied. The fertilizer should be spread as uniformly as possible on top of the mulch.

Sawdust, shavings, wood chips, and other fine, loose materials are the easiest to apply. The woody by-products are available for the asking in many sections of the State. From 3 to 5 bushels of sawdust or other loose materials are needed for each 100 square feet of garden surface. This makes a loose covering about 1 inch thick. A somewhat thicker layer is needed to control such persistent grasses as quack. The old fears of woody materials making the soil very acid are erroneous. As already indicated, they do take nitrogen from the soil for their decomposition.

This objection is easily, cheaply, and effectively overcome by the application of additional nitrogenous fertilizer in the same way as described in the preceding paragraph. This nitrogen eventually becomes available to the crop plants as the woody material decays. In the meantime this organic material loosens heavy soils and makes them easier to work. The loose sandy soils are helped because they hold water and plant foods better.

In Brief

Experiments in many States have repeatedly shown that the principal value of cultivation is to control weeds. Mulching is an easy and more lasting way than any other to prevent weeds in many of the garden vegetables. Experience will be the best way to learn the full value and possibilities of the use of mulches to control weeds, to conserve moisture, and to keep some of the vegetables out of the dirt. The best materials to use, the best time to apply, the quantity or thickness needed, and numerous other questions must be answered differently depending on the soil, the vegetables being grown, the rainfall, weeds to be prevented, and numerous other variables from one garden to another.

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